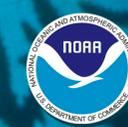


# NOAA Video Data Management System (VDMS): Archiving, Preserving, and Accessing Online Oceanographic Information



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**ABSTRACT:**  
To address the increasing requirements for archiving, preserving and managing digital videos, still images, and audio resources, the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean Exploration (OE) embarked upon the Video Data Management System (VDMS) Pilot Project, in collaboration with the National Oceanographic Data Center (NODC), National Coastal Data Development Center (NCDDC), and the NOAA Central Library (NCL). Since 2002, the OE Integrated Product Team (IPT) has been developing a standardized capability for archiving these disparate types of data and information.

NCL staff led the development of the Video Data Management System (VDMS) Project Plan, which is part of a larger comprehensive OE Data Management Project. The VDMS team was asked to define and establish 'best practices' to support OE video data management requirements. They developed metadata guidelines for digital video (DV12) and digital still images (DI12) to help scientists and data managers in the field create complete metadata about their data. These guidelines also facilitate creation of MARC21, FGDC, or Dublin Core standard metadata records. They also proposed a work-flow for managing digital videos by defining the process for moving video data from ship to library, including steps for creating archival backup copies and Web-accessible video clips and highlights.

The VDMS Project presently manages offline access to more than 1500 MiniDV and 500 DVCAM tapes, over 1000 DVDs, and online access to more than 100 digital video clips and highlights collected during NOAA ocean exploration cruises. Currently, access to the NOAA cruise video highlights and related documents is provided through NOAAALINC, the NCL online catalog at <http://www.lib.noaa.gov>. A growing collection of digital data obtained during OE cruises, including video, still images, and in situ ocean observations, is archived at NODC. These data are accessible through the search and retrieval functions of the NODC Ocean Archive System (OAS) at <http://www.nodc.noaa.gov/Archive/Search/>.

| Digital Video Metadata Required Fields (DV12) |                     |
|---|---------------------|
| 1. Title                                      | 1. Title            |
| 2. Description                                | 2. Description      |
| 3. Date                                       | 3. Date             |
| 4. Location                                   | 4. Location         |
| 5. Platform                                   | 5. Platform         |
| 6. Duration                                   | 6. Duration         |
| 7. File Name                                  | 7. File Name        |
| 8. File Size                                  | 8. File Size        |
| 9. File Format                                | 9. File Format      |
| 10. File Path                                 | 10. File Path       |
| 11. File Type                                 | 11. File Type       |
| 12. File Extension                            | 12. File Extension  |
| 13. File Size (KB)                            | 13. File Size (KB)  |
| 14. File Size (MB)                            | 14. File Size (MB)  |
| 15. File Size (GB)                            | 15. File Size (GB)  |
| 16. File Size (TB)                            | 16. File Size (TB)  |
| 17. File Size (PB)                            | 17. File Size (PB)  |
| 18. File Size (EB)                            | 18. File Size (EB)  |
| 19. File Size (ZB)                            | 19. File Size (ZB)  |
| 20. File Size (YB)                            | 20. File Size (YB)  |
| 21. File Size (BB)                            | 21. File Size (BB)  |
| 22. File Size (NB)                            | 22. File Size (NB)  |
| 23. File Size (DB)                            | 23. File Size (DB)  |
| 24. File Size (CB)                            | 24. File Size (CB)  |
| 25. File Size (SB)                            | 25. File Size (SB)  |
| 26. File Size (LB)                            | 26. File Size (LB)  |
| 27. File Size (KB)                            | 27. File Size (KB)  |
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| 34. File Size (YB)                            | 34. File Size (YB)  |
| 35. File Size (BB)                            | 35. File Size (BB)  |
| 36. File Size (NB)                            | 36. File Size (NB)  |
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| 39. File Size (SB)                            | 39. File Size (SB)  |
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| 78. File Size (NB)                            | 78. File Size (NB)  |
| 79. File Size (DB)                            | 79. File Size (DB)  |
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| 83. File Size (KB)                            | 83. File Size (KB)  |
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| 90. File Size (YB)                            | 90. File Size (YB)  |
| 91. File Size (BB)                            | 91. File Size (BB)  |
| 92. File Size (NB)                            | 92. File Size (NB)  |
| 93. File Size (DB)                            | 93. File Size (DB)  |
| 94. File Size (CB)                            | 94. File Size (CB)  |
| 95. File Size (SB)                            | 95. File Size (SB)  |
| 96. File Size (LB)                            | 96. File Size (LB)  |
| 97. File Size (KB)                            | 97. File Size (KB)  |
| 98. File Size (MB)                            | 98. File Size (MB)  |
| 99. File Size (GB)                            | 99. File Size (GB)  |
| 100. File Size (TB)                           | 100. File Size (TB) |

Figure 1. Metadata guidelines for digital video (DV-12) and digital still images (DI-12) help scientists and data managers in the field create complete metadata to document their data.

| Video Name                  | Date     | Unit     | File Name | File Size | File Type | File Format | File Location | File Status |
|-----------------------------|----------|----------|-----------|-----------|-----------|-------------|---------------|-------------|
| Submarine Ring of Fire 2003 | 03-10-03 | 03-10-03 | 03-10-03  | 147 MB    | AVI       | AVI         | AVI           | AVI         |
| Lower East Coast            | 03-10-03 | 03-10-03 | 03-10-03  | 147 MB    | AVI       | AVI         | AVI           | AVI         |
| Upper East Coast            | 03-10-03 | 03-10-03 | 03-10-03  | 147 MB    | AVI       | AVI         | AVI           | AVI         |
| Lower West Coast            | 03-10-03 | 03-10-03 | 03-10-03  | 147 MB    | AVI       | AVI         | AVI           | AVI         |
| Upper West Coast            | 03-10-03 | 03-10-03 | 03-10-03  | 147 MB    | AVI       | AVI         | AVI           | AVI         |
| Lower South Coast           | 03-10-03 | 03-10-03 | 03-10-03  | 147 MB    | AVI       | AVI         | AVI           | AVI         |
| Upper South Coast           | 03-10-03 | 03-10-03 | 03-10-03  | 147 MB    | AVI       | AVI         | AVI           | AVI         |
| Lower North Coast           | 03-10-03 | 03-10-03 | 03-10-03  | 147 MB    | AVI       | AVI         | AVI           | AVI         |
| Upper North Coast           | 03-10-03 | 03-10-03 | 03-10-03  | 147 MB    | AVI       | AVI         | AVI           | AVI         |

Figure 2. Selected page of the Inventory of OE video collections in the NOAA Central Library Archive.

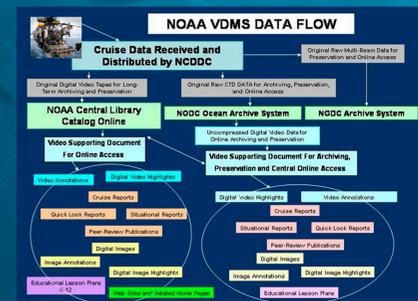


Figure 3. Schematic diagram of OE video and related data flow in VDMS system.

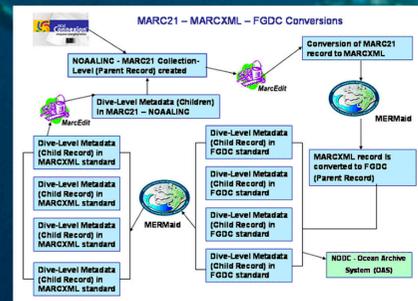


Figure 4. MARC21 to MARCXML to FGDC conversion workflow.

## VDMS Project Objectives:

- Provide timely online information about NOAA's Office of Exploration video data to the general public.
- Archive and preserve unique video and related data for future generations.
- Educate our Nation about NOAA oceanographic expeditions and underwater explorations through digital video and related data.
- Foster collaboration between NOAA librarians, data managers, and scientists from different NOAA offices and programs.
- Use or extend existing library tools, guidelines, and metadata standards to support new media formats: digital video, digital image, and digital text documents.
- Enhance data access and metadata sharing between NCL NOAAALINC, NODC Ocean Archive System (OAS), and NCDDC MerMaid catalogs.

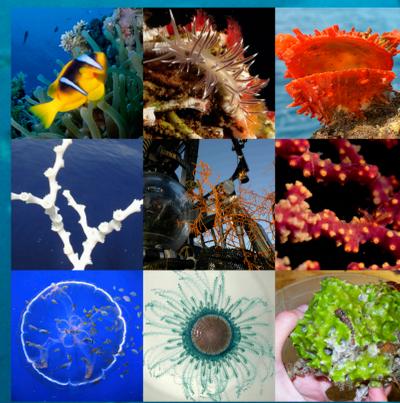


Figure 5. VDMS mascot - Charlie the Crab.



Figure 6. NOAA Central Library home page <http://www.lib.noaa.gov>.

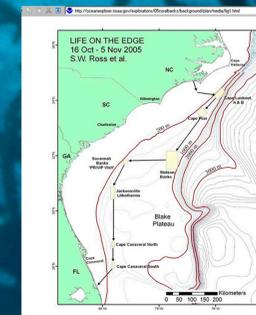


Figure 7. Digital map of area investigated.

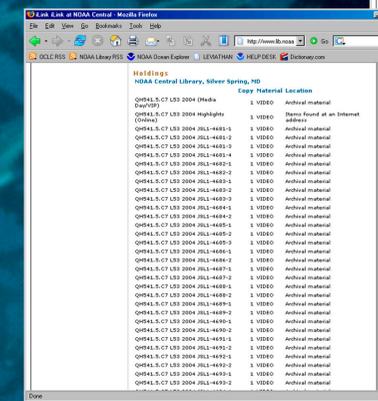


Figure 8. Library's collection-level metadata record in MARC21 standard provides online access to OE digital video highlights, video clips, entire video footage annotations, digital images and image annotations, cruise reports, scientific datasets, lesson plans, digital maps, expedition Websites, etc.

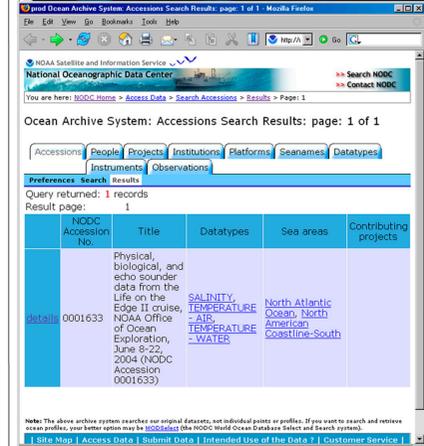
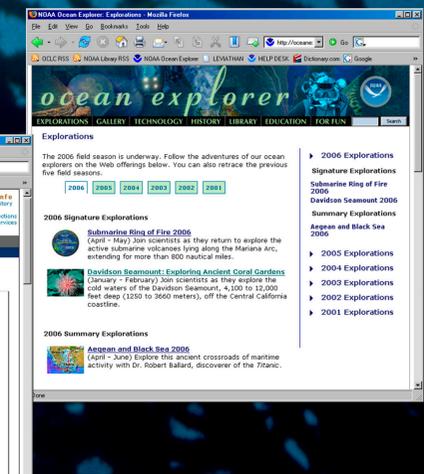


Figure 9. NODC Ocean Archive System (OAS) results page.

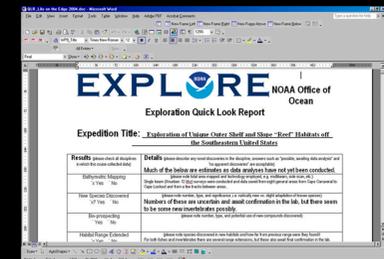


Figure 10. Cruise reports in Word or PDF formats.